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WHAT IS CLAIMED:

An implantable prosthesis having improved mechanical and chemical properties

comprising

a radiation resistant and hydrolytically stable biocompatible fabric having inner and outer surfaces and first and second ends;

said fabric having a textile construction of a plurality of polymeric filaments comprising a naphthalene dicarboxylate derivative.

- 2. The implantable prosthesis of claim 1 wherein said fabric is polyethylene naphthalate.
- 3. The implantable prosthesis of claim 1 wherein said fabric is selected from the group consisting of poly(ethylene naphthalate), poly(propylene naphthalate), polytrimethylene naphthalate, trimethylenediol naphthalate, poly(iso-propylene naphthalate), poly(n-butylene naphthalate), poly(iso-butylene naphthalate), poly(tert-butylene naphthalate), poly(n-pentylene naphthalate), poly(n-hexylene naphthalate), and combinations and derivatives thereof.
- 4. The implantable prosthesis according to claim 1 wherein said textile construction is selected from the group consisting of weaves, knits, braids, filament windings or spun filament.

- 5. The implantable prosthesis according to claim 1 wherein said implantable prosthesis is a vascular graft
- 6. The implantable prosthesis according to claim 1 wherein said implantable prosthesis is an endovascular graft.
- 7. The implantable prosthesis according to claim 1 wherein said implantable prosthesis is selected from the group consisting of a balloon catheter, filter, mesh, vascular patch, hernia plug and arterial-vascular access graft.
 - 8. The implantable prosthesis according to claim 1 further including a coating.
- 9. The implantable prosthesis according to claim 1, wherein the polymeric filaments have about 20 to about 100 filaments.
- 10. The implantable prosthesis according to claim 1, wherein the polymeric filaments have a denier from about 20 to about 1500.

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An implantable prosthesis having improved mechanical and chemical properties

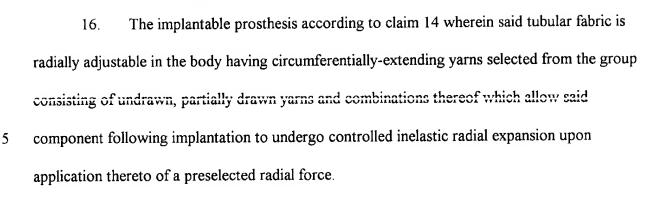
comprising:

a radiation resistant and hydrolytically stable biocompatible tubular fabric of a

5 textile construction,

said fabric having a plurality of yarns selected from the group consisting of polyethylene naphthalate, polybutylene naphthalate and combinations thereof.

- 12. The implantable prosthesis according to claim 11 wherein said implantable prosthesis is a intraluminal prosthesis.
- 13. The implantable prosthesis according to claim 11 wherein said implantable prosthesis is an endovascular graft.
- 14. The implantable prosthesis according to claim 11 further including a radially deformable support component.
- 15. The implantable prosthesis according to claim 14 wherein said support component is a radially deformable stent.



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Method for making a radiation and thermal resistant and hydrolytically stable, steam sterilizable biocompatible prosthesis comprising:

a) providing a fabric having an inner and outer surface and first and second ends, said fabric having a plurality of polymeric filaments comprising a naphthalene dicarboxylate derivative;

- b) selecting a textile construction pattern; and
- c) forming said prosthesis in accordance with a textile construction pattern.
- 18. Implantable prosthesis comprising a fabric having improved chemical and mechanical properties formed by the process comprising:
 - a) providing a fabric having an inner and outer surface and first and second ends, said fabric having a plurality of polymeric filaments comprising a naphthalene
- 5 dicarboxylate derivative;
 - b) selecting a textile construction
 - c) forming said prosthesis in accordance with a textile pattern; and
 - d) steam sterilizing said prosthesis.